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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,789	06/26/2003	Eric J. Bergman	54008.8026.US00	6887
45540	7590	05/12/2005	EXAMINER	
PERKINS COIE LLP/SEMITOOL			CARRILLO, BIBI SHARIDAN	
PO BOX 1208			ART UNIT	
SEATTLE, WA 98111-1208			PAPER NUMBER	
			1746	
DATE MAILED: 05/12/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/608,789	Applicant(s) BERGMAN, ERIC J.	
	Examiner Sharidan Carrillo	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 22-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 22-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 3-12, 21, and 23-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehmandoust (US2001/0047595) in view of Ferrell et al. (5974689).

In reference to claims 1, 21, 31, and 33-34, Mehmandoust teaches a method of cleaning and drying a substrate comprising immersing the workpiece in an aqueous solution in a process vessel 194 (Fig.3); delivering an organic vapor of IPA in combination with hydrofluoroether to a region above the surface of the aqueous solution to create a reduced surface tension at the surface of the aqueous solution and causing

the liquid vapor interface to pass across the workpiece, pulling the aqueous solution off the workpiece to dry the workpiece (paragraphs 64, 88, 94, Fig. 10a).

In reference to claims 1, 6, and 26, Mehmandoust fails to teach sonic agitation. Ferrell et al. teach a method of cleaning and drying a workpiece using HFE or IPA. In col. 3, lines 105, Ferrell teaches the use of ultrasonic vibrations generated in the cleaning bath in order to enhance the removal of contaminants from the substrate surface. In the embodiments of Figs. 3A-3D, Ferrell teach ultrasonicating as the wafer is removed from the bath and dried with HFE.

It would have been obvious to a person of ordinary skill in the art to have modified the method of Mehmandoust, to include ultrasonic vibration in the cleaning bath, as taught by Ferrell, for purposes of enhancing the removal of contaminants from the wafer surface. Additionally, the use of ultrasonic energy for particle removal is notoriously well known in the art.

In reference to claims 3 and 23, refer to paragraph 8 of Mehmandoust. In reference to claims 4, 8, and 24, refer to paragraph 84 of Mehmandoust. In reference to claims 5 and 25, refer to Fig. 16B. In reference to claim 7, refer to paragraph 86. In reference to claim 9, Mehmandoust fails to teach including at least one additive in the aqueous solution. Ferrell teaches that it is conventional to include chemical baths containing acids and bases as part of the cleaning process. It would have been obvious to a person of ordinary skill in the art to have modified the method of Mehmandoust to include acids and bases, as taught by Ferrell et al., which are conventionally used in the cleaning process. In reference to claims 10 and 28, refer to paragraph 8 of

Mehmandoust. In reference to claims 11 and 29, refer to paragraphs 73 and 86. In reference to claim 12, refer to paragraph 41. In reference to claim 27, the limitations are met since Mehmandoust teaches the same organic solvent as the claimed invention. In reference to claim 30, refer to paragraph 65.

4. Claims 2 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehmandoust (US2001/0047595) in view of Ferrell et al. (5974689), as applied to claims 1, 3-12, 21, and 23-31, as described in paragraph 3 above, and further in view of Danese (6457478).

Mehmandoust et al. in view of Ferrell et al. teach the invention substantially as claimed with the step of irradiating the work piece. Danese teaches a method for treating a work piece with UV light. Additionally, col. 2, lines 20-30, teaches it is well known in the art to use UV light to remove surface contaminants from the wafer surface.

It would have been obvious to a person of ordinary skill in the art to have modified the method of Mehmandoust et al. to include UV light, since Danese teaches these steps are conventionally and notoriously used for the treatment of semiconductor wafers. Additionally, it would have been within the level of the skilled artisan to have modified the method of Mehmandoust et al., to include UV, as taught by Danese, for purposes of enhancing removal of contaminants from the wafer surface.

Response to Arguments

5. Applicant argues that Ferrell et al. fail to teach a surface tension effect. In view of applicant's arguments, the prior art of Mehmandoust et al. has been introduced to cure the above deficiency.

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6. All arguments directed to Andreas are moot in view of the withdrawn of the rejection.


7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fishkin et al. and Britten teach the surface tension effect of pulling the liquid off the wafer surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 571-272-1297. The examiner can normally be reached on Monday-Friday, 6:00a.m-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SHARIDAN CARRILLO
PRIMARY EXAMINER

Sharidan Carrillo
Primary Examiner
Art Unit 1746


SHARIDAN CARRILLO
PRIMARY EXAMINER